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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/609,052	06/27/2003	William Edward Burdick JR.	120377-1/YOD GERD:0060	6909
7590 12/06/2004			EXAMINER	
Patrick S. Yoder FLETCHER YODER P.O. Box 692289 Houston, TX 77269-2289			MITCHELL, JAMES M	
			ART UNIT	PAPER NUMBER
			2813	

DATE MAILED: 12/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/609,052

Applicant(s)

BURDICK ET AL.

Examiner

James M. Mitchell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) 19-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/15/04</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This office action is in response to the application filed June 27, 2003.

#### ***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-18, drawn to device, classified in class 257, subclass 686.
- II. Claims 19-36, drawn to method, classified in class 438, subclass 106.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process, such as without a folding step.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Patrick Yoder on October 15, 2004 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-18. Affirmation of this election must be made by applicant in replying to this Office Action. Claims 19-36 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Paurus et al. (U.S. 5,448,511).

Paurus (Fig 1,3, 7) discloses an electronic component assembly, comprising: a flexible printed circuit (104); a first modular section (1<sup>st</sup> U shaped portion from bottom) formed on the flexible printed circuit, comprising: a first electronic component (1<sup>st</sup> item 132 from bottom) electronically coupled (Fig 1; contact not labeled) with the flexible printed circuit, a second component (2<sup>nd</sup> form bottom, 132) electronically coupled with the flexible printed circuit, the flexible printed circuit folded to position the components in generally mutually facing relation; and, an inter-component thermal management device (308) disposed between the components, in thermal relation with the components, for removing or stabilizing thermal energy from the components during operation; a second modular section (2<sup>nd</sup> U shape form bottom; [elements follow as indicated in 1<sup>st</sup> modular section]) comprising: a first component electronically coupled with the flexible printed circuit; a second component electronically coupled with the flexible printed circuit, the flexible printed circuit folded to position the components in generally mutually facing relation; and, a further inter-component thermal management device disposed between the components in thermal energy from the relation with the components, for removing or stabilizing components during operation, the flexible

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printed circuit being folded to form a stack of the modular sections; (cl. 4) with components (132) having identical or similar functions (i.e. Abstract, "memory device"); (cl. 10, 16) wherein the components of the first modular section and the second modular section are disposed on a first side of the flexible printed circuit and a third modular section ( 3<sup>rd</sup> U from bottom), similar to the first and second modular sections, is disposed on a second side (Fig 7 , 9 shows embodiment with components on first and second surfaces of board) of the flexible printed circuit opposite to the first side, the flexible printed circuit' being folded to form a stack of the modular sections; (cl. 6, 11, 12, 18) at least one second thermal management device (308) thermally connected to the inter-component or thermal management device, and is positioned a side face of the assembly (i.e. either to left or right of side surface of assembly); (cl. 7, 14) with the assembly further comprising external contacts (140) for external signal communication; (cl. 9) and a thermal management device disposed on a second side of the board (i.e. thermal device along on both first and second sides of board; Fig 7); (cl. 15) with alternate arrangements of modulars); (cl. 17) with at least one of the thermal management devices connected to at least one inter component or the inter-layer thermal management device;

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 3, 6-9, 11-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Wang et al. (6,590,282).

Wang (Fig 2B) discloses an electronic component assembly, comprising: a flexible printed circuit (44); a first component (52) electronically coupled (i.e. through bumps) with the flexible printed circuit, a second component (52) electronically coupled with the flexible printed circuit, the flexible printed circuit folded to position the components in generally mutually facing relation and an inter-component thermal management device (86) disposed between the components, in thermal relation with the components, for removing or stabilizing thermal energy from the components during operation; (cl. 2, 3) wherein the component is an electronic component; (cl. 6, 11, 12) at least one second thermal management device thermally connected to the inter-component or thermal management device, and is positioned a side face of the assembly (i.e. either to left or right of side; Fig 2B); (cl. 7) at least one external signal communication (60) interface on the flexible printed circuit for communicating signals between the components and external circuits; (cl. 8) further discloses a first modular section (i.e. bottom 44) formed on the flexible printed circuit, comprising: the first component electronically and a second component and a second modular section comprising: a first component electronically coupled with the flexible printed circuit; a second component (i.e. top 44) electronically coupled with the flexible printed circuit, the flexible printed circuit folded to position the components in generally mutually facing relation; and a further inter-component thermal management device (86) disposed between the components in thermal energy from the relation with the

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components, for removing or stabilizing components during operation, the flexible printed circuit being folded to form a stack of the modular sections; (cl. 9, 14) wherein the components of the first modular section and the second modular section are disposed on a first side (i.e. top portion) of the flexible printed circuit, and an inter-layer thermal management device (86 in region, 74) is disposed on a second side of the flexible printed circuit opposite to the first side, the flexible printed circuit being folded to form a stack of the modular sections and the inter-layer heat dissipation device.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Paurus et al. (U.S. 5,448,511) as applied to claim 1 and further in combination with Degani et. al. (U.S. 6,734,539)

Paurus does not appear to show that the components have different functionality in operation.

Degani discloses utilizing components of different functionality ((Col. 1, Lines 15-35).

It would have been obvious one of ordinary skill in the art to form the components of Paurus with different functionality in order to reduce size in packaging as taught by Degani (Col. 1, Lines 15-35)

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. (U.S. 6, 590,282) as applied to claim 1 and further in combination with Takahashi et al. (U.S. 6,765,299)

Wang does not appear to show that the components have identical, similar or different functionality in operation.

Takahashi teaches utilizing components of the same or different functionality (col. 3, Lines 32-40).

It would have been obvious to form the component with either identical, similar or different functionality in operation in order to achieve a predetermined necessity and purpose as taught by Takahashi (col. 3, Lines 32-40).

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Mitchell whose telephone number is (571) 272-1931. The examiner can normally be reached on M-F 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jmm  
10/19/04

  
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